

from suture to suture but fade out just below the periphery, with shallow, narrower interspaces; spiral sculpture of numerous, fine, closely-spaced striations over the entire surface; periphery well rounded; base rather short, well rounded; aperture subquadrate, posterior angle acute, outer lip thin, showing the brown color-band within; columella slender, nearly straight. The holotype has lost the nucleus and first postnuclear whorl, the remaining 8 whorls measure: length, 5.6, maximum diameter, 2.0 mm. The description of the nucleus was taken from an immature paratype of 5 whorls which measures: length, 2.5, maximum diameter, 0.8 mm.

Comparison: This species is nearest to *Turbonilla (Pyrgolampros) newcombei* Dall and Bartsch¹ from British Columbia, differing principally in the wider ribs and shorter base. *Number of specimens:* Two adults and six immature specimens, in addition to the type material, were dredged at the type locality. *Collector:* Dr. Tage Skogsberg; specimens collected in 1935. *Repositories of type material:* Holotype and paratype, Stanford Univ. Paleo Type Coll. Other specimens are deposited in the collections of the California Academy of Sciences, United States National Museum, and A. M. Strong.

SOME LAND MOLLUSKS OF THREE COUNTIES IN EASTERN OHIO

BY A. F. ARCHER

There has been very little published on the land mollusks of the extreme eastern section of Ohio, and from many aspects this area is still somewhat of a terra incognita. In November, 1936, a preliminary survey of the fauna was undertaken by myself in order to explore the possibilities of future research. As stated in another paper the whole region has been badly deforested due to a combination of grazing, small-scale agriculture, and particularly the heavy demands on local timber by industry and mining. The bluffs above the Ohio River have been almost entirely denuded of their forest cover. In other areas woodland remains only on steep ledges and in ravines. Beyond that woods exist in very small patches on other types of terrain. The pur-

¹ Proc. U. S. Nat. Mus., vol. 33, 1907, p. 503, pl. 45, fig. 6.

pose of this paper is to furnish annotated lists of the fauna of four random localities within the confines of Jefferson, Belmont, and Guernsey counties.

Steubenville, Jefferson County, Ohio. This locality consists of a river bluff at the edge of the city. The rocky bluffs are covered with a rather rank growth of tall weeds and some shrubs, such as sumac and wild grape. A level area along the street is covered with grasses, burdocks and other weeds, and the ground is rather stony. The soil along this side of the Ohio River is impregnated with soot, and is somewhat acid. The snails live in the grass and weeds and under stones and rocks both on the bluff and along the street.

Haplotrema concavum (Say). Occasional.

Retinella indentata (Say) form *paucilirata* (Morelet). Not common.

Mesomphix inornatus (Say). Occasional.

Mesomphix perlaevis Pilsbry. Rare.

Zonitoides ligerus (Say). Very abundant.

Zonitoides intertextus (A. Binney). Rare.

Polygyra tridentata (Say). Very common.

Polygyra profunda (Say). Occasional.

Polygyra albolabris (Say). Not common.

New Alexandria, Jefferson County. This locality consists of a series of steep ledges, thinly wooded, above level open fields on either side of a small stream. The leaf mold is thick; logs are numerous; and the woods are composed of oaks, hickories and maples. The snails are not very common.

Haplotrema concavum (Say).

Retinella wheatleyi (Bland).

Zonitoides ligerus (Say).

Zonitoides intertextus (A. Binney).

Polygyra hirsuta (Say).

Polygyra fraterna (Say).

Polygyra tridentata (Say).

Polygyra palliata (Say).

Polygyra profunda (Say).

Polygyra thyroidus (Say).

Polygyra fraterna (Say). Like *P. clausa* this snail is notably rare in woods (except where fires have swept through). It is

common in grass along roads and in fields, and to some extent stones and boards. The adults tend to shun the deeper shade of shrubs (except during hibernation).

Polygyra monodon (Rackett). Common in meadows, orchards and on railroad embankments, in grass, weeds, and under boards.

Anguispira alternata is a very abundant culture snail in western and northern Ohio, and inhabits walls, roadsides, railroad embankments, etc. It is not very common in grass, and seems to require the adequate shelter of burdocks and other tall weeds, as well as boards, rocks, and shrubs. *Holcodiscus parallelus* is abundant in very rocky places in fields and in walls. *Gonyodiscus cronkhitei anthonyi* is abundant under stones and in weeds along roads, under stones, boards, and rubbish in fields and vacant lots. *Gonyodiscus perspectivus*, although rare in open country, occasionally lives under logs or in grass in fields. *Zonitoides ligerus* lives in grass in fields in large numbers, as well as in weeds, such as soapweed, on railroad embankments; *Z. demissus* is common in grass in fields; *Z. intertextus* lives in grass and weeds (especially on stony ground) in fields, and on rocky river bluffs in eastern Ohio, but is never common. *Z. arboreus* is fairly frequent in all types of culture zones, rural and urban. *Gastrocopta armifera* and *Pupoides marginatus* are rare or absent in woods, but abundant in fields, on railroad embankments, and also in rocky, open country. The other *Gastrocoptas* (*pentodon* and *contracta*) are rare in open country, except on stony or rocky ground. *Vertigo tridentata* and *V. ventricosa* have similar preferences, while *V. pygmaea* is less exacting, for it lives in the same habitats as *Vallonia pulchella* and *V. costata*. Both of the Vallonias are common in open country, at least on less acid soils. *Hawaiiia minuscula* is indifferent as far as the presence or absence of lime is concerned. It is partial to open grassy and stony country. *Cochlicopa lubrica* is certainly more common in open country than in woodland cover. *Retinella indentata* lives in grass and under stones in fields and other types of open country, and is quite often found buried in plant trash in shrubby thickets; *R. wheatleyi* has almost identical habits, while *R. electrina* is more partial to grass and weeds than to stony cover. Of the genus *Mesomphix* we find *inornatus* and *perlaevis*

living under stones on bare river bluffs and in vacant lots, all in eastern Ohio. Neither of the species are at all common in open country. *Agriolimax* (*Deroceras*) *laevis campestris* and *A. agrestis* live in open fields, in grass or under rocks and boards, and also occur in urban surroundings. *Haplotrema concavum* occurs sporadically in grass and weeds in company with its molluscan prey.

From all the evidence gathered so far, it seems clear that a very considerable and adaptive fauna is in the process of taking over the open country created by agriculture, industry, and human occupation in eastern Ohio. In many instances many species are now more abundant per square acre than they were under the old forest conditions. Other species are greatly limited by culture conditions, even though they do affect open country, while some are actually eliminated or locally extirpated. It is significant that the major part of this assemblage of culture species is of American and not of European origin, contrary to the predictions of some naturalists a few years ago.

The species listed above live in leaf mold, under bark, and under logs. The fields below the ledges contain only two less species. The vegetation consists of grasses, tall annual weeds, such as goldenrod, mint, and patches of wild grape. The species are:

Haplotrema concavum (Say). Under logs; in tall weeds. Not common.

Zonitoides ligerus (Say). In grass, tall weeds, and wild grape.

Zonitoides intertextus (A. Binney). Under logs. Rare.

Polygyra hirsuta (Say). In grass, tall weeds; in wild grape patches; under logs. The commonest species in the open.

Polygyra fraterna (Say). In grass. Uncommon.

Polygyra tridentata (Say). Under logs; in wild grape; in tall weeds. Next in abundance.

Polygyra clausa (Say). In mint patches.

Polygyra thyroidus (Say). In grass. Occasional.

Lloydsville, Belmont County. This locality is an area of pastured hills. One of the hills contains a patch of oak-hickory woods near the summit, some of the trees being white oak, yellow oak, shellbark hickory, rock maple, and beech. The soil is a

yellowish clay, and the outcropping rocks are sandstone and shale. The snails are concentrated in leaf pockets, around stumps, and under logs.

Haplotrema concavum (Say). Occasional.

Helicodiscus parallelus (Say). Rare.

Zonitoides demissus (A. Binney). Rare.

Polygyra hirsuta (Say). In leaf pockets occasionally, but commonest hibernating in brambles and around stumps.

Polygyra fraterna (Say). Around stumps. Rare.

Polygyra tridentata (Say). Under logs and stones. Occasional.

Polygyra albolabris (Say). Rare.

In contrast with the seven species in the woods, fourteen species were found in the open fields, and some of them are abundant. They live in grass and weeds as well as among stones, and are especially common on the lower slopes. The species are:

Haplotrema concavum (Say). Occasional.

Anguispira alternata (Say). Rare.

Retinella wheatleyi (Bland). Rare.

Retinella electrina (Gould). Rare.

Zonitoides arboreus (Say). Rare.

Zonitoides demissus (A. Binney). Common.

Polygyra hirsuta (Say). Abundant.

Polygyra fraterna (Say). Rather frequent.

Polygyra tridentata (Say). Common.

Polygyra albolabris (Say). Not common.

Three miles west of Fairview, Guernsey County. In this locality the woods are largely confined to deep ravines. The trees are white oaks and maples with an understory of seedlings, brambles, and wild grape patches. The humus has been trampled by cattle, and apparently in consequence of this the snails occurring belong mostly to small species. The snails live under fallen bark and logs, in leaf mold, and in wild grape. The species are:

Anguispira alternata (Say). Uncommon.

Zonitoides ligerus (Say). Rather frequent.

Polygyra hirsuta (Say). Quite common.

Polygyra inflecta (Say). Uncommon.

Polygyra fraudulentata Pilsbry. Uncommon.

In the shrubby, grassy roadsides and fields above the ravines four species are found:

Anguispira alternata (Say). In trash among shrubs. Uncommon.

Polygyra fraterna (Say). Common in grass, but avoiding the shrubs.

Polygyra inflecta (Say). In shrubs and grass. Occasional.

Polygyra fraudulentata Pilsbry. Mostly in shrubs. The commonest species.

A NEW RACE OF HELMINTHOGYPTA TRASKI FROM LOWER CALIFORNIA

BY E. P. CHACE

In the course of a trip to Ensenada fragments of a *Helminthogyptha* were found which we were unable to refer to any of the named races. Further search at the same locality by the writers and Mr. and Mrs. Geo. Willett in February, 1937, netted two live and two very good dead shells, one of the live ones not quite mature. Study of these specimens shows them to be a distinct race which is here named

HELMINTHOGYPTA TRASKI MISIONA, new subspecies. Pl. 4, fig. 2.

Shell low conic, umbilicate, umbilicus about $1/9$ the greater diam. of the shell, permeable to the apex, nearly $1/3$ covered by the reflected lip. Whorls $5\frac{1}{2}$, tumid, the last dropping so as to leave the dark peripheral band exposed for $1/3$ of a turn. Aperture subcircular, moderately oblique. Lip slightly reflected throughout, more so at the umbilicus, white, faintly thickened within, ends connected by a very thin, transparent callus. Color, brownish-olive, slightly lighter on the base, with the usual light-bordered brown band at the periphery. Periostracum thin, very glossy. Growth lines regular, close and fairly strong. Under a 20X lens the nuclear and early whorls show a finely granular surface; parts of the later whorls show very faint incised spiral lines.

· Dimensions.	(umbilicus to spire)		
of type greater diam.	26.9	—lesser diam.	21.7
altitude,	13.2 mm.		
2nd. specimen,	“ 30.7		24.6
			14.6 mm.
Mr. Willett's			
specimen,	“ 29.0		22.5
			13.0 mm.